

What is Claimed is:

1. A method of making a slurry coated electrode, the method comprising:

5 dry blending dry carbon particles and dry binder to form a dry mixture comprised of the dry carbon particles and the dry binder;
 liquefying the dry mixture with a solution to form a slurry;
 applying the slurry to a current collector;
 drying the slurry; and
10 compacting the current collector and slurry.

2. The method of claim 1, wherein the step of blending comprises a step of dry fibrillizing the mixture.

3. The method of claim 2, wherein the dry fibrillizing step comprises milling the mixture.

15 4. The method of claim 2, wherein the dry fibrillizing step comprises subjecting the mixture to high shear forces.

5. The method of claim 2, wherein the dry fibrillizing step utilizes a high-pressure gas.

20 6. The product of claim 5, wherein the high-pressure gas comprises
a pressure of more than 60 PSI.

7. The product of claim 5, wherein the gas comprises a water
25 content of no more than 20 PPM.

8. The method of claim 1, further comprising the step of treating the current collector prior to applying the slurry to improve adhesion between the current collector and slurry.

5 9. The method of claim 8, wherein the step of treating the current collector further comprises coating the current collector with a bonding agent prior to applying the slurry.

10 10. The method of claim 8, wherein the step of treating the current collector further comprises roughening a surface of the current collector prior to applying the slurry.

11. The method of claim 1, wherein the dry binder comprises a fluoropolymer.

12. The method of claim 11, wherein the fluoropolymer particles comprise PTFE.

15 13. The method of claim 1, wherein the mixture comprises conductive particles.

14. The method of claim 1, wherein the mixture comprises activated carbon particles.

15. The method of claim 1, wherein the mixture comprises approximately 50% to 99% activated carbon.

20 16. The method of claim 11, wherein the mixture comprises approximately 0% to 25% conductive carbon.

17. The method of claim 11, wherein the mixture comprises approximately 0.5% to 20% fluoropolymer particles.

18. The method of claim 11, wherein the mixture comprises approximately 80% to 95% activated carbon, approximately 0% to 15% conductive carbon, and approximately 3% to 15% fluoropolymer.

19. The method of claim 1, wherein the solution comprises deionized water

20. The method of claim 1, wherein the current collector comprises aluminum.

21. The method of claim 1, wherein the step of applying the suspension comprises coating the current collector with the slurry using a doctor blade, a slot die, or a direct or reverse gravure process.

22. A blend of dry particles fibrillized for use in the manufacture of a coated electrode, comprising:
a mixture of dry fibrillized dry carbon and dry binder particles.

23. The particles of claim 22, wherein the dry binder particles comprise a polymer, and wherein the dry carbon particles comprise activated and conductive carbon.

24. The particles of claim 23, wherein the binder comprises fluoropolymer particles.

25. The particles of claim 24, wherein the binder comprises PTFE.

26. The particles of claim 23, wherein the binder comprises particles subjected to high shear forces.

27. The particles of claim 26, wherein the high shear forces are applied by gas at more than about 60 PSI.

5 28. The particles of claim 26, wherein the binder comprises milled polymer particles.

29. The particles of claim 26, wherein the binder comprises jet milled polymer particles.

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30. The particles of claim 26, wherein the binder comprises hammer milled polymer particles.

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31. The particles of claim 24, wherein the electrode is an energy storage device electrode.

32. The particles of claim 31, wherein the energy storage device is a capacitor.

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33. An electrode, comprising;
a dry blend of dry carbon particles and dry binder particles subjected to high shear forces.

34. The electrode of claim 33, wherein the blend comprises approximately 50% to 99% activated carbon.

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35. The electrode of claim 33, wherein the blend comprises approximately 0% to 25% conductive carbon.

36. The electrode of claim 33, wherein the blend comprises approximately 0.5% to 20% fluoropolymer.

5 37. The electrode of claim 33, wherein the blend comprises approximately 80% to 95% activated carbon, approximately 0% to 15% conductive carbon, and approximately 3% to 15% fluoropolymer.

38. The electrode of claim 33, wherein the electrode is a capacitor electrode.

10 39. The electrode of claim 38, wherein the electrode is a double-layer capacitor electrode.

40. The electrode of claim 33, wherein the electrode is a battery electrode.

41. The electrode of claim 33, wherein the electrode is a fuel-cell electrode.

20 42. The electrode of claim 33, further comprising a current collector, wherein the binder and carbon particles are in the form of a coated dried slurry, wherein the slurry is coupled to the current collector.

25 43. A capacitor product, comprising;
a dry fibrillized blend of dry particles subjected to high shear forces, the particles including binder and carbon particles; and
one or more current collector, wherein the blend of dry particles are disposed onto the one or more current collector as a coating.

44. The product of claim 43, wherein between the one or more current collector and the dry particles is disposed a bonding layer.

5 45. The product of claim 43, wherein the one or more current collector comprises aluminum.

46. The product of claim 45, further comprising a housing, wherein the one or more current collector is shaped as a roll, wherein the roll is disposed within the housing.

10 47. The product of claim 46, wherein within the housing is disposed an electrolyte.

15 48. The product of claim 47, wherein the electrolyte comprises acetonitrile.

49. The product of claim 43, wherein the capacitor is rated to operate at a voltage of no more than about 3.0 volts.

20 50. An energy storage device, comprising:
dry fibrillized electrode means for providing coated electrode functionality in an energy storage device.

25 51. A capacitor, the capacitor comprising:
a housing;
a cover;
a collector, the collector disposed in the housing, the collector comprising two ends, a first end coupled to the housing, a second end coupled to the cover;

a dried electrode slurry, the dried electrode slurry disposed as a coating onto the collector, the dried electrode slurry comprising a dry fibrillized blend of dry carbon and dry polymer, the dry fibrillized blend comprising of essentially no processing additive;

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and

an electrolyte, the electrolyte disposed in the housing.

52. The capacitor of claim 51, wherein the capacitor comprises a capacitance of greater than 1 Farad.

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